

CLAIMS:

1. Gas discharge lamp, specifically a HID lamp, more specifically a metal halide lamp, most specifically a metal halide lamp with an aspect ratio greater than 3 or even 4, comprising:

5 a discharge chamber having walls sealingly enclosing the discharge chamber;

two electrodes arranged in the discharge chamber opposite each other, for

burning an arc therebetween;

the discharge chamber containing a saturated system comprising an excess amount of salt, such as for instance metal halides, such that during operation of the lamp, a salt pool of melted salt will be present inside the discharge chamber;

10 the lamp being designed such that, when the lamp is operative in a vertical orientation, the location of the salt pool is close to the top of the discharge chamber.

2. Gas discharge lamp according to claim 1, wherein the coldest spot is close to the top of the discharge chamber.

15

3. Gas discharge lamp according to claim 1 or 2, wherein the lamp is designed such that, when the lamp is operative in a vertical orientation, an arc heats the ceiling of the discharge chamber to a lesser extent than the bottom or lower cap of the discharge chamber.

20 4. Gas discharge lamp according to claim 3, wherein the lower electrode has a point-to-bottom distance that is smaller than the point-to-bottom distance of the upper electrode.

25 5. Gas discharge lamp according to claim 4, wherein the lower electrode has a point-to-bottom distance in the order of 0-5 mm.

6. Gas discharge lamp according to claim 1 or 2, preferably also according to any of claims 3-5, wherein the lamp is designed such that heat output close to the ceiling of the

discharge chamber is greater than the heat output close to the bottom of the discharge chamber.

7. Gas discharge lamp according to claim 6, wherein one or more upper lamp components are designed such that their heat transportation capacity is larger than the heat transportation capacity of the corresponding lower lamp components.

8. Gas discharge lamp according to claim 6 or 7, further comprising electrode conductors sealingly extending through wall sections of the discharge chamber, wherein the electrode conductor of the top electrode is thicker than the electrode conductor of the lower electrode.

9. Gas discharge lamp according to any of claims 6-8, further comprising electrode conductors sealingly extending through wall sections of the discharge chamber, wherein the electrode conductor of the top electrode is made from a material having a larger heat transportation capacity than the material of the electrode conductor of the lower electrode.

10. Gas discharge lamp according to any of claims 6-9, wherein a wall section of the discharge chamber close to the top electrode is thicker than a wall section of the discharge chamber close to the lower electrode.

11. Gas discharge lamp according to any of claims 6-10, wherein a wall section of the discharge chamber close to the top electrode is made from a material having a larger heat transportation capacity than the material of a wall section of the discharge chamber close to the lower electrode.

12. Gas discharge lamp according to any of claims 6-11, wherein the lamp is provided with additional heat discharge means located at the upper end of the discharge chamber.

13. Gas discharge lamp according to claim 12, wherein said additional heat discharge means comprise suitably configured fins, and/or wherein said additional heat discharge means comprise a radiation layer.

14. Gas discharge lamp according to any of claims 6-13, wherein the lamp is provided with heat transfer inhibiting means located at the lower end of the discharge chamber.

5

15. Gas discharge lamp according to claim 14, wherein said heat transfer inhibiting means comprise a heat shield which is located close to the electrode conductor of the lower electrode and preferably surrounds this electrode conductor, and/or wherein said heat transfer inhibiting means comprise a heat shield which is located close to a lower portion of the discharge chamber and preferably surrounds this lower portion.

10 16. Gas discharge lamp, specifically a HID lamp, more specifically a metal halide lamp, most specifically a metal halide lamp with an aspect ratio greater than 3 or even 4, comprising:

15 a discharge chamber having walls sealingly enclosing the discharge chamber; two electrodes arranged in the discharge chamber opposite each other, for burning an arc therebetween;
further comprising electrode conductors sealingly extending through wall sections of the discharge chamber, the two electrode conductors having a mutually different thickness and/or being made from mutually different material.

20 17. Gas discharge lamp, specifically a HID lamp, more specifically a metal halide lamp, most specifically a metal halide lamp with an aspect ratio greater than 3 or even 4, comprising:

25 a discharge chamber having walls sealingly enclosing the discharge chamber; two electrodes arranged in the discharge chamber opposite each other, for burning an arc therebetween;
wherein a first wall section of the discharge chamber close to one electrode has a thickness differing from the thickness of a second wall section of the discharge chamber close to the other electrode, and/or wherein said first wall section is made from a material differing from the material of said second wall section.

18. Gas discharge lamp, specifically a HID lamp, more specifically a metal halide lamp, most specifically a metal halide lamp with an aspect ratio greater than 3 or even 4, comprising:

a discharge chamber having walls sealingly enclosing the discharge chamber;

5 two electrodes arranged in the discharge chamber opposite each other, for burning an arc therebetween;

the lamp further comprising additional heat discharge means located at one end of the discharge chamber, said additional heat discharge means preferably comprising suitably configured fins and/or said additional heat discharge means preferably comprising a 10 radiation layer.

19. Gas discharge lamp, specifically a HID lamp, more specifically a metal halide lamp, most specifically a metal halide lamp with an aspect ratio greater than 3 or even 4, comprising:

15 a discharge chamber having walls sealingly enclosing the discharge chamber; two electrodes arranged in the discharge chamber opposite each other, for burning an arc therebetween;

the lamp further comprising heat transfer inhibiting means located at one end of the discharge chamber, said heat transfer inhibiting means preferably comprising a heat

20 shield located close to one electrode conductor, and/or said heat transfer inhibiting means preferably comprising a heat shield located close to a portion of the discharge chamber.

20. Lamp assembly comprising a bulb and a lamp arranged inside the bulb, the lamp being designed according to claim 1 or 2, preferably also according to any of claims 3-5 25 and/or according to any of claims 6-15 and/or according to any of claims 16-19; wherein the lamp assembly is provided with additional heat generating means located close to one end of the discharge chamber.

21. Lamp assembly according to claim 20, said additional heat generating means 30 comprising a radiation coil.

22. Lamp assembly according to claim 21, comprising a pair of electrically conductive lamp supports supporting the lamp and supplying power to the lamp, wherein the radiation coil is also powered by the said lamp supports.